

When Eating Turns Deadly

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Objectives:

- ❖ Participant will identify normal swallowing mechanisms and contrast with altered swallowing pathophysiology.
- ❖ Participant will identify risk factors which contribute to choking in individuals with I/DD.
- ❖ Participant will identify strategies to prevent choking incidents, and will develop skills to train staff in recognition and prevention of choking incidents.

The Scope of the Problem

- Mass 10% of deaths due to choking, aspiration and aspiration pneumonia
- AZ Choking is the 3rd leading cause of death
- Aspiration pneumonia-3rd leading cause of death in individuals with DD
- GA Choking, aspiration pneumonia and pneumonia were the leading cause of death for 2 consecutive years
- IN Respiratory related deaths accounted for 30% of all deaths
- WA 24% of deaths were related to respiratory causes

Definitions

- Dysphagia: difficulty swallowing
- Aspiration: entry of material (such as secretions, food or drink, or stomach contents) from the throat or G/I tract into the lungs
- Silent Aspiration: aspiration without outward evidence (i.e. no coughing, throat clearing, choking)

Definitions

- Aspiration Pneumonia: An infection of the lungs or airways resulting from saliva, liquids, or vomit is breathed into the lungs or airways leading to the lungs, instead of being swallowed into the esophagus and stomach.
- Choking: Food or foreign object lodged in the airway, which impedes airflow
- Epiglottis- trap door that protects the trachea during swallowing

Normal Swallowing

- [Swallowing](#)

When Swallowing Goes Wrong

Risk Factors Contributing to Dysphagia

- Poor dentition/oral hygiene
- Neurological causes
 - Dementia; cerebral palsy; seizure disorders; Down syndrome; Muscular Dystrophy; TBI; Parkinson's disease
- Medication side effects
 - Diminished muscle tone
 - Dry mouth
 - Sedation

Risk Factors Contributing to Dysphagia

- Age
- GERD
- Cleft lip and palate
- Esophageal strictures

Contributing Factors

- Poor positioning
- Lack of airway protection
- Behavioral issues
- Pace of eating
- Size of food/bites/sips

Physiology of Aspiration

- Failure of epiglottis to close allows food/fluids/secretions to enter the upper respiratory tract
- May or may not result in coughing/choking/throat clearing
- Foods/fluids/secretions contain bacteria which breeds in lung tissue and causes pneumonia
- Gastric acids can cause chemical pneumonia

Signs of Swallowing Dysfunction

- Coughing/choking/throat clearing
- Food falling from the mouth
- Drooling
- Refusal of food or drink
- Changes in eating habits
- Chronic congestion/hoarseness
- Throwing head back when swallowing
- Vomiting after meals
- Change in facial color
- Weight loss
- Excessive time to eat/be fed
- Dehydration

Signs of Swallowing Dysfunction

- Refusal to eat except for preferred staff
- Change in pace of eating or drinking
- Eating in different position than usual
- Signs of respiratory illness
- Frequent colds, chronic runny nose/eyes
- Chronic fatigue
- Pain with eating/swallowing
- Sensation of food being “stuck”
- Regurgitation
- Heartburn/GERD

Causes of Aspiration Pneumonia

- Poor oromotor skills
- Dysphagia
- Depressed cough and gag reflexes
- Tube feeding
- Tracheostomies
- Risky eating behaviors
 - Eating too quickly
 - Overfilling mouth
 - Pica

Choking

- Blockage of the upper airway by food or an object, which prevents person from effectively breathing
- Medical emergency which requires immediate first aid and EMS intervention

Signs of Choking

- Clenching the throat “universal sign”
- Inability to speak, cough or breath
- Noisy breathing, wheezing, crowing, whistling or other unusual sounds
- Skin, lips or nail beds turning bluish
- Change in consciousness
- Gasping for air
- Agitation/fidgeting/panic
- Loss of consciousness

Foods Commonly Choked On

- Sandwiches
- Peanut butter
- Hot dogs/sausage
- Vegetables, particularly raw
- Fruit, especially with skin on
- Snacks
 - Popcorn, nuts, gum, raisins, hard candy

Causes of choking

- Eating too fast
- Not chewing food prior to swallowing
- Overfilling the mouth
- Food acquisition
- Pica
- Incorrect diet texture
- Multiple textures (fruit cocktail, cereal with milk)

Causes of Choking

- Inadequate staff training
 - Food preparation
 - Poor positioning
 - Poor assisted eating techniques
- Inadequate supervision
- Dentition
 - Edentulousness
 - Mouth pain
 - Dentures
- Inattention
 - Laughing/talking/distractions/walking/running

Diagnosis

- Bedside swallow study performed by OT/Speech
- Modified Barium Swallow

Interventions For Swallowing Dysfunction

- Give oral meds no larger than appropriate dietary sizes
- Dry swallows
- Alternate sips/swallows
- Referral to OT/SLP
- Proper supervision
- Minimize distractions
- Encourage person not to talk while eating

Prevention

- Education
- Document mealtime concerns
- Supervision
- Strict dietary compliance
- Use/maintain proper adaptive equipment
- Do not leave food unsupervised
- Administrative oversight

Staff Education

- Use of visuals; posters, charts, videos, models
- Word pictures
- Instruction regarding “prohibited foods” on modified texture diets
- Proper food preparation
- Proper thickening consistency

Modified texture diets

- Regular-food served in whole forms
- Cut up (1", ½" ¼")
- Chopped-food mechanically processed to pea size
- Ground-food processed to the size of a grain of rice
- Pureed-food that is processed without lumps. It is smooth, pudding like and should flow in “glops”, not in a stream

Thickened beverages

- Increases the weight of the liquid
- Slows the flow of liquid throughout swallowing
- Gives time to trigger a proper swallow
- Staff training regarding proper thickening
- Some products thicken with standing
- Watch calorie content
- May use food substances, e.g. mashed potato flakes

Natural Food Thickeners

- Flour
- Tapioca
- Cornstarch
- Potato flakes
- Arrowroot
- Guar gum
- Gelatin
- Coconut flour
- Chia seeds

Liquids

- Thin- liquids served without a change in thickness or consistency
- Nectar thick-slightly thickened
 - Fork test- lightly coats the fork and sinks through the prongs
 - Spoon test-leaves a “ribbon” or “trail” when poured, similar to maple syrup
- Honey thick- thicker than nectar, similar to honey
 - Fork test- lightly coats the fork and sinks slowly through the prongs
 - Spoon test-flows slowly from a spoon, pours similar to a milkshake
- Pudding thick-does not pour, but rather “drops” from the spoon
 - Fork test- remains on fork
 - Spoon test-does not pour from spoon. Spoon can stand up in product and requires a spoon for eating

Positioning

- Wheelchair modifications
- Proper body alignment
- Proper positioning in chair 30-45 degrees
- Upright after meals for 30-45 minutes
- Proper table height

Mealtime Strategies

- Alternates sips and bites
- Dry swallows
- Controlled flow cups
- Nosey cups
- Sippy cups
 - Divided plates/plating small amounts
- Adaptive sized spoons
- Pacing
 - Cues

Environmental Strategies

- Quiet environment; music
- Monitor access to food
- Be aware of volunteers/“helpers”

Importance of Oral Hygiene

- Good oral hygiene **1,000 to 100,000 bacteria** living on each tooth surface
- Less clean mouths can have between **100 million** and **1 billion bacteria** on each tooth.
- Bacterial growth in the oral cavity predisposes the individual to pneumonia

Oral Hygiene

- Eliminates bacteria, which contribute to the risk of pneumonia
- Increases salivation, which is beneficial to chewing/swallowing
- Opportunity to monitor changes in dentition
- Desensitizes individual to oral interventions, which may facilitate preventive dentistry and dental treatment

References

- <https://en.wikipedia.org/wiki/Dysphagia>
- <https://www.webmd.com/digestive-disorders/swallowing-problems#1>
- <https://www.mayoclinic.org/diseases-conditions/dysphagia/symptoms-causes/syc-20372028>
- https://dbhdd.georgia.gov/sites/dbhdd.georgia.gov/files/related_files/document/2013-2014%20Annual%20Mortality%20Report.pdf
- https://www.in.gov/fssa/files/2014_Annual_Mortality_Review_report_09_04_15.pdf
- <https://www.dshs.wa.gov/.../Mortality%20Reviews%20DASH%20DDA%20WA%20state...>